

## REMARKS

Claims 1, 3-7, and 12-20 are pending in the application. Applicant respectfully requests reconsideration of this application.

Rejection of Claims 1, 3-4, 7, 12-14, and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publ. No. 2004/0147276 (Gholmieh) in view of U.S. Pat. No. 6,157,820 (Sourour)

The Office Action has cited Gholmieh (US 2004/0147276) for a 35 U.S.C. § 103(a) rejection of claims 1-4, 7-9, 11-14, and 16-18. The filing date for the cited reference Gholmieh (U.S. Publ. No. 2004/0147276) is December 16, 2003 which is three months after the September 16, 2003 filing date of the application under consideration. Therefore, Applicant understands that the related provisional patent application serial no. 60/433937, filed on December 17, 2002, is the true basis for the rejection. Applicant has reviewed and considered Gholmieh-Provisional (U.S. Appln. No. 60/433937) as well as Gholmieh (U.S. Publ. No. 2004/0147276) in order to clarify the differences between Gholmieh-Provisional (U.S. Appln. No. 60/433937) and Gholmieh (U.S. Publ. No. 2004/0147276).

Applicant respectfully submits that the combination of Gholmieh and Sourour does not teach or suggest all the claim limitations as set forth in independent claims 1, 12, and 16. For example, independent claims 1, 12, and 16 recite “wherein the *communication channel variance condition* is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval” and “establishing, by the mobile station, a headroom value *based on the communication channel variance condition*” which are not taught or suggested in the combination of Gholmieh and Sourour.

Gholmieh is directed towards a method for reducing signaling associated with frequent reporting of power headroom. According to Gholmieh, the radio base station (RBS) receives infrequent periodic full reports from a mobile station that indicates the current power headroom of the mobile station. The RBS tracks changes in the mobile station’s headroom over the interval between full reports based on reverse link power control commands sent by it, or based on power control decision feedback from the mobile station. See Gholmieh Abstract.

Sourour is directed towards a method for evaluating signal strength of a channel received at a mobile station. Sourour suggests sampling a received spread spectrum signal at different sampling rates to generate a first sample stream and a second sampling stream. Sourour further

proposes measuring the signal strength of the channel based upon the first and second sample streams. See Sourour Abstract.

The Office Action on page 4 states that “Gholmieh does not teach determining, by the mobile station, a communication channel variance condition, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval. Sourour, which also teaches power control in a CDMA system, teaches determining, by the mobile station, a communication channel variance condition, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval (Cols. 4 lines 15-17, 8 lines 47-60, the window provides the measurement interval or time period).”

The Office Action specifically refers to Sourour’s signal strength of a CDMA channel measured over a time duration of  $W$  chips as describing or being analogous to Applicant’s communication channel variance condition measured within an adaptive interval, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval. This analogy is, however, a mischaracterization of Sourour.

Sourour’s measurement of signal strength of a CDMA channel over a chip interval of  $W$  chips can not be equated to Applicant’s determining primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval because of the following reasons. Signal strength of any received signal/channel is one instantaneous sample of the channel condition and reflects the channel condition at that particular instant of time. Moreover, *measuring the signal strength over a time period (for example,  $W$  chips) only gives an average value of the signal strength measured at different discrete time instants*. Whereas, Applicant’s *communication channel variance condition* (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) is determined over an adaptive measurement interval *and reflects the channel condition changes over a period of time*.

As an example, say that an S/I for channel A at time instants  $t_1$ ,  $t_2$ ,  $t_3$ , and  $t_4$  is [3, 1, 1, 3] and the S/I for channel B at time instants  $t_1$ ,  $t_2$ ,  $t_3$ , and  $t_4$  is [2, 2, 2, 2]. Applicant’s

communication channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) at the same time instants for channel A would be [1, 2, 1, 1.5] and for channel B would be [0, 0, 0, 1]. Meanwhile, Sourour's signal strength over a time period of W chips (W=4) for both channels A and B would be 2. The given S/I in the example suggest that the channels A and B have similar average signal strength (e.g., an average of 2 across the four time instants), whereas the communication channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) suggests that a channel variance condition of channel A is higher than a channel variance condition of channel B. Therefore, Sourour's signal strength can not be equated to Applicant's channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates). Thus, Sourour is not applicable to claims 1, 12, and 16.

Applicant respectfully disagrees with the statement in the Office Action on page 3 that states "Gholmieh teaches establishing, by the mobile station, a headroom value based on the communication channel variance condition (Sections 0009 lines 1-9, 0021 lines 3-7, 0023, 0026-0028)." Gholmieh describes controlling the transmit power of the mobile station to receive the mobile station transmission at a targeted received signal quality by providing closed-loop reverse link power control. In Gholmieh, a radio base station (RBS) asks the mobile station to increase or decrease its reverse link transmit power, if according to the RBS the reverse link transmit power of the mobile station is not sufficient for a required signal quality. Incrementing transmit power, by the mobile station, may implicitly imply decrementing power headroom, at the mobile station. Gholmieh describes power headroom as representing the amount by which the mobile station can increase its transmit power if commanded by the RBS. See Gholmieh, para [0009] and [0023]. Therefore, Gholmieh's mobile station establishes the power headroom, by incrementing/decrementing the transmit power, based on power up/down commands from the RBS, where the power up/down commands are based on the reverse link transmit power of the mobile station determined by the RBS. But Gholmieh's "reverse link transmit power" can not be equated to Applicant's "communication channel variance." This is also acknowledged by the Examiner on page 4 of the office action, where the Examiner states that "Gholmieh does not teach determining, by the mobile station, a communication channel variance condition." Thus, *Gholmieh may suggest establishing a power headroom, indirectly, by the mobile station based*

*on the reverse link transmit power*. But Gholmieh does not show or suggest “establishing, by the mobile station, a headroom value *based on the communication channel variance condition*” as recited by Applicant’s claims 1, 12, and 16.

Applicant also submits that Office Action lacks a proper motivation to combine Gholmieh with Sourour, plus a combination of Gholmieh and Sourour does not teach or suggest all the elements of the claims. First, Gholmieh discloses a method to help a radio base station (RBS) track the changes of mobile station’s power headroom, by having the mobile station report its headroom at certain intervals and using the differential update (e.g., the power control command sent from RBS to mobile station) during that interval. See Gholmieh paras. [0008]-[0009]. In contrast, Sourour teaches evaluating the signal strength of a CDMA channel received at a mobile station. See Sourour col. 4 lines 3-27. Since Gholmieh’s method operates at the RBS, it does not measure signal strength perceived at mobile station’s end as taught by Sourour. The Office Action’s stated motivation of “for the purpose of providing an improved method for searching for stronger paths for active CDMA channels” has no bearing on headroom feedback signaling per Gholmieh. Therefore, it is not reasonable to combine Gholmieh with Sourour, and Applicant contends that the Office Action appears to rely solely on hindsight analysis to piece together elements from a base-station-centric solution (Gholmieh) and a mobile-station-centric solution (Sourour) without a proper motivation to combine or operative connections between the elements of Gholmieh and Sourour.

Next (assuming for the sake of argument that Sourour showed or taught a mobile station determining a communication channel variance condition), the combination of Gholmieh and Sourour fails to teach or suggest each element of the claims because neither Gholmieh nor Sourour teaches a mobile station using a communication channel variance condition to establish a headroom value as recited in claims 1, 12, and 16.

For the above reasons, Applicant submits that independent claims 1, 12, and 16 and dependent claims 3-4, 7, 13-14, and 17-18 are not obvious in view of the combination of Gholmieh and Sourour, and therefore that the rejection of claims 1, 3-4, 7, 12-14, and 16-18 under 35 U.S.C. § 103(a) should be withdrawn.

Rejection of Claims 5-6, 15, and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publ. No. 2004/0147276 (Gholmieh) in view of U.S. Pat. No. 6157820 (Sourour) and further in view of U.S. Pat. No. 6,563,810 (Corazza).

Corazza fails to overcome the deficiencies of Gholmieh and Sourour, because Corazza also does not show or suggest “wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval” as recited in independent claims 1, 12, and 16. Corazza uses a maximum power which is reduced by the headroom power to provide for power control variations. However, for the case of battery-limited condition, Corazza chooses the lesser power denoted by  $P(R)$ .  $P(R)$  is a transmit value selected for reliable transmission and it does not contain any headroom or margin for power control variations. See Corazza col. 6 lines 30-50.

Dependent claims 5-6, 15, and 19-20 depend from, and include all the limitations of their respective independent claims 1, 12, and 16. Therefore, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 5-6, 15, and 19-20 under 35 U.S.C. 103(a) as being unpatentable over Gholmieh, Sourour, and Corazza is respectfully requested.

### Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Such action is earnestly solicited by the Applicant. Should the Examiner have any questions, comments, or suggestions, the Examiner is invited to contact the Applicant’s attorney or agent at the telephone number indicated below.

Please charge any fees that may be due to Deposit Account 502117, Motorola, Inc.

Respectfully submitted,

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